

CLAIMS:

1. A gas bearing system comprising two opposing substantially parallel bearing surfaces (2,3) and at least one gas duct (6) for supplying gas through an orifice (7) to the bearing gap (5) between said bearing surfaces (2,3), characterized in that at least one of said bearing surfaces (2) is provided with at least one cavity (8,9) extending over 0.3 mm² to 3 mm² of said at least one bearing surface (2).

2. A gas bearing system as claimed in claim 1, characterized in that said cavity (8,9) extends over 0.5 mm² to 2 mm² of the bearing surface (2).

10 3. A gas bearing system as claimed in any one of the preceding claims, characterized in that the content of said cavity (8,9) is between 0.3 mm³ and 4 mm³, preferably between 0.5 mm³ and 2 mm³, more preferably between 0.7 mm³ and 1,5 mm³

15 4. A gas bearing system as claimed in any one of the preceding claims, characterized in that said gas duct (6) supplies gas to said cavity (8) through an orifice (7) in the wall of said cavity (8).

20 5. A gas bearing system as claimed in any one of the preceding claims, characterized in that the depth of the cavity (8,9) is at least two times, preferably at least four times, more preferably at least six times the diameter of said orifice (7).

25 6. A gas bearing system as claimed in any one of the preceding claims, characterized in that said orifice (7) has a diameter between 0.05 mm and 0.3 mm, preferably between 0.07 mm and 0.25 mm, more preferably between 0.1 mm and 0.2 mm.

7. A gas bearing system as claimed in any one of the preceding claims, characterized in that the dimension of the cavity (8,9) in a direction parallel to said bearing surface (2) is between 0.5 mm and 2.5 mm, preferably between 0.5 mm and 1.5 mm, more preferably between 0.7 mm and 1.2 mm.

8. A gas bearing system as claimed in any one of the preceding claims, characterized in that the cavity (8,9) has a substantially cylindrical shape, the cylindrical axis being directed substantially perpendicularly to said substantially parallel bearing surfaces (2,3).

9. A gas bearing system as claimed in any one of the preceding claims, characterized in that the depth of the cavity (8,9) is between 0.3 mm and 2 mm, preferably between 0.5 mm and 1.5 mm, more preferably between 0.7 mm and 1.2 mm.

10

10. A high precision machine comprising a gas bearing system, characterized by a gas bearing system as claimed in any one of the preceding claims.